3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1. INTRODUCTION

This chapter describes the affected environment and potential impacts of the Proposed Action, the No Action Alternative, and the AMA. The affected environment is the portion of the existing natural and human environment that could be impacted, and serves to describe the baseline condition of the site prior to construction. Environmental consequences are also referred to as potential impacts. Impacts may be either direct or secondary. A direct impact is one that is caused by the proposed action and occurs at the same time and place. A secondary impact is a further impact to the human environment that may be stimulated or induced by, or otherwise result from, a direct impact of the action. Resource topics were identified through scoping; the discussions in this chapter are limited only to those resources that could be subject to potential impacts:

- Air Quality (Section 3.2)
- Cultural and Tribal Resources (Section 3.3)
- Groundwater Hydrology (Section 3.4)
- Surface Water Hydrology (Section 3.5)
- Geology and Geochemistry (Section 3.6)
- Land Use and Recreation (Section 3.7)
- Visuals and Aesthetics (Section 3.8)
- Socioeconomics (Section 3.9)
- Soils (Section 3.10)
- Noise (Section 3.11)
- Transportation (Section 3.12)
- Vegetation (Section 3.13)
- Wetlands (Section 3.14)
- Wildlife (Section 3.15)
- Aquatic Biology (Section 3.16)

3.1.1. Location Description and Study Area

The MOP Application Boundary encompasses approximately 1,888 acres of privately owned ranch land under lease to the Proponent, with associated buildings and a road network throughout. The Project location and associated study area include all lands and resources in the MOP Application Boundary, plus those additional areas identified in each resource-specific

analysis area that are beyond the MOP Application Boundary. The analysis area for each resource is defined with its respective subsection in this chapter.

3.1.2. Impact Assessment Methodology

The Project team used information and data from desktop analysis, field surveys, and professional judgment to identify potential environmental consequences of the Project for each resource area. The Project and alternatives were then evaluated to assess their potential impacts on resources. Potential impacts were characterized in terms of impact magnitude, duration, and extent. The consistent application of the impact assessment methodology as part of the analysis allows the comparison and prioritization of impacts, which can inform the development of measures to help avoid, minimize, and mitigate potential impacts. Consistent use of an impact methodology can also increase the analytical rigor of the impact analysis included in an EIS.

The environmental consequences sections that follow describe potential impacts from the Project or alternatives during construction, operation, and reclamation and closure phases. These potential impacts may be beneficial or adverse. Furthermore, potential impacts may be direct or secondary. Direct impacts are those that occur at the same time and place as the action that triggers the impact. Secondary impacts are further impacts to the human environment that may be stimulated or induced by, or otherwise result from, a direct impact of the action. Residual impacts are those that are not eliminated by mitigation. Cumulative impacts are those collective impacts on the human environment of the Project when considered in conjunction with other past and present actions related to the Project by location or generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through pre-impact statement studies, separate impact statement evaluation, or permit processing procedures. Mitigations are actions that are not a part of the Project as proposed but may be added to reduce potential impacts.

The significance of the potential impact is based on two elements: (1) the severity of the potential impact, and (2) the likelihood that the impact would occur. The severity is a function of its geographic reach, magnitude, duration, reverse-ability, and if it surpasses an environmental threshold such as a water quality or air quality standard. **Table 3.1-1** provides a summary of impact assessment criteria for environmental and social resources.

The likelihood of a potential impact occurring is comprised of the following categories:

- Low likelihood—Rare (e.g., few or no occurrences in the hard-rock mining industry);
- Medium likelihood—Uncommon (e.g., documented occurrences in the hard-rock mining industry); and
- High likelihood—Common (e.g., occurs within the hard-rock mining industry).

Table 3.1-1
Impact Significance Criteria

Environmental Impact Criteria				
Severity	**Duration/Frequency**		**Description**	
Low	Short term (up to 1 year) Low frequency		Affects environmental conditions, water, resources, air quality, species, and habitats over a short period of time. The impact is localized and reversible. Environmental standards would not be exceeded.	
Medium	Medium term (1 to 7 years) Medium or intermittent frequency		Affects environmental conditions, water, resources, air quality, species, and habitats in the short to medium term. Ecosystem integrity would not be adversely affected in the long term, but the impact would likely be significant in the short or medium term to some species or receptors. The area/region may be able to recover through natural regeneration and restoration. The geographic extent may be local or regional.	
High	Long term (more than 7 years)/Irreversible Constant frequency		Affects environmental conditions, water resources, air quality, species, and habitats for the long term, may substantially alter the local and regional ecosystem and natural resources. Regeneration to its former state would not occur without intervention. Impacts may not be irreversible. An environmental standard would be exceeded.	
Social Impact Criteria				
Severity	**Duration/Frequency**	**Extent**	**Ability to Adapt**	**Social Outcome**
Low	Short term (up to 1 year) Low frequency	Individual/ Household	Those affected would be able to adapt to the changes with relative ease and maintain pre-impact livelihoods, culture, and quality of life.	Inconvenience but with no consequence on long-term livelihoods, culture, quality of life, resources, infrastructure, and services.
Medium	Medium term (1 to 7 years) Medium or intermittent frequency	Small number of households	Those affected would be able to adapt to change with some difficulty and maintain pre-impact livelihoods, culture, and quality of life, but only with a degree of support.	Direct and secondary impacts on livelihoods, culture, quality of life, resources, infrastructure, and services.
High	Long term (more than 7 years)/Irreversible Constant frequency	Large part or entirely	Those affected would not be able to adapt to changes and continue to maintain pre-impact livelihood.	Widespread and diverse direct and secondary impacts would likely be impossible to reverse or compensate for.

The overall rating of potential impacts is ultimately a combination of severity and likelihood. It should be noted that this methodology acts as a guide and there may be situations where rigid application is inappropriate. In general, the level of assessment is proportionate to its potential impacts (in other words, the greater the potential impact, the greater the depth of analysis). Potential direct impacts are described for every resource area; secondary impacts are described where they exist, and residual impacts are described where mitigation has been identified.

The process of impact assessment, or evaluation of potential environmental consequences resulting from actions associated with each alternative, is completed through a series of steps. In general, these steps are as follows:

1. Characterize the existing conditions before the Project is undertaken.
2. Describe the Project components throughout the Project lifespan construction, operations, and reclamation and closure.
3. Identify alternatives to the Project that could be carried forward for analysis in the EIS. Screen these alternatives to determine which if any are carried forward for further analysis in the EIS.
4. Based on the description of the Project alternatives, identify sources of impacts and describe the potential impacts for each resource area using the impact assessment criteria, including direct, secondary, cumulative and as necessary residual impacts.
5. Identify appropriate mitigation measures. This could result in revising the actions that are proposed under an alternative or result in the development of new alternatives.
6. Describe potential impacts after mitigation to understand residual impacts.